

26 – 30 Sept Beginner Java Servlets

Prerequisites:

You should be on the Advanced Java level

Intended Audience:

This Beginner Java Servlets and JSP course is intended for people who have basic Java skills up to our Advanced Java level, no web programming experience is needed. Learn how to develop robust Java Web applications based on Servlets and JSP's with a Tomcat server.

After this course you should be able to

Know how Java Servlets and JSP's work together in a Java Web App.

Understand how Tomcat and Netbeans facilitates Java Servlet Web App Development.

Code and test JavaServer Pages that use scriptlets, expressions, the implicit request object, the ServletContext object, page directives, and JSP comments.

Code and test servlets that perform data input and storage.

Use the web.xml file for an application to map a servlet to a URL pattern.

Write debugging data for a servlet to either the console or a log file.

Use the MVC pattern to develop web applications so servlets control the processing and JSPs handle the presentation.

Provide for server-side data validation in your applications.

Use include files in your JSPs at compile-time or runtime.

Use the web.xml file to set initialization parameters and use your servlets to get the parameters.

Use the web.xml file to implement custom error handling.

Provide for session tracking by using both cookies and URL

encoding.

Provide for parameter passing by using URL rewriting or hidden fields.

Test your web applications with cookies enabled and with cookies disabled.

Write a utility class that includes a static method for getting a specific cookie from a user's browser.

Create business classes that are JavaBeans.

Course Contents

Day 1

WEB APPLICATIONS

A typical example

Components of a Web App

Static vs. Dynamic

Overview of (Servlets, JSF, Spring Framework)

Intro to Servlets/JSP development

Software used for developing Java Web Apps

Software Components

Architecture

Standard Directories and Files

Software for Developing Java Web Apps

WebServers

Database Servers

Deployment Tools

MVC

Model 1

Model 2 (MVC)

An example MVC Servlet App

UI, HTML, CSS

Servlet

Web.XML or Annotations?

User Class

JSP for the 2nd page

NETBEANS AND TOMCAT

How to use the NetBeans IDE

HTML, JSP files

Java Classes

Servlets

XML files like Web.XML

More NetBeans IDE Features

HTML5 AND CSS3

HTML5 elements

HTML5 Semantic Elements

Div and Span

Cross-Browser Compatibility

Links, Images, Tables

CSS styles

CSS Selectors

CSS Rule Sets and Comments

CSS for table formatting

HTML Forms

Text Boxes, Buttons, Check Boxes, Radio Buttons

Combo Boxes, List Boxes

SERVLETS

Creating and mapping a Servlet

Requesting a Servlet

Servlet Skills

Data Validation

Web.xml

Servlet methods

Servlet Errors

Day 2

JSP's

EL and JSTL

Coding a JavaBean

Using EL to get attributes and JavaBean properties

Enabling the core JSTL Library

Using the JSTL if tag

How to use JSP tags
Directives, Scriptlets, Expressions
Comments in JSP's
Standard JSP tags in JavaBeans
useBean
getProperty
setProperty
Including files in a JSP
Common JSP errors
Day 3

SESSIONS AND COOKIES

Session tracking with HTTP
Session tracking in Java
Why an app needs session tracking
Getting and Setting session attributes
More methods of the session object
Thread-safe access to the session object
Creating and using cookies
Viewing and deleting cookies
Four methods for working with cookies
A utility class for working with cookies
URL rewriting
Using hidden fields to pass parameters
A Music Download Application
User Interface
File structure
web.xml
JSP's
Servlets

EXPRESSION LANGUAGE

Advantages and Disadvantages
Using the dot operator to work with arrays and lists
Using EL to specify scope
How to use the dot operator to work with arrays and lists
How to use the dot operator to access nested properties

Using the [] operator to access attributes

Working with other implicit EL objects

Working with other EL operators

How to disable EL

How to disable scripting

Day 4

How to use the JSP Standard Tag Library
(JSTL)

An introduction to JSTL

JSTL Libraries

Making the JSTL Jar files available to your application

Coding the taglib directive

Coding a JSTL Tag

Viewing the documentation for a library

How to work with the JSTL core library

out, forEach, forTokens

Attributes for looping

if, choose, url tags

More tags

The Cart Web application

User Interface

Business Classes

Servlets and JSP's

CUSTOM JSP TAGS

How to code a custom tag that doesn't have a body

How to code a custom tag that has a body

How to code a custom tag that has attributes

How to code a custom tag that reiterates its body

How to work with scripting variables

Classes, methods and fields for working with custom tags

Day 5

How to use MySQL as the database management system

An introduction to MySQL

How to work with the MySQL Workbench

Database Connections

The SQL statements for data manipulation
SQL Commands Overview
JDBC

How to use JDBC to work with a database
Database drivers
Connecting to a Database
Returning a Result Set
Retrieve Data from a Result Set
Insert, update, delete data
Prepared Statements
An SQL Gateway Application
How to work with connection pooling
The Email List application
JPA

Introduction
A summary of JPA implementation
Entities and the Entity Manager
Configuring the Netbeans IDE to work with JPA
Configuring a Persistence unit
JPA Entities
Coding the class for an entity
Using getter and field annotations
Coding relationships between entities
Working with dates and times
Retrieving data
Getting an Entity Manager Factory
Retrieving an entity by primary key
Retrieving multiple entities
Retrieving a single entity
Insert, update or delete a single entity
Update or delete multiple entities
A complete JPA class
Methods to modify date
Methods to retrieve data
Transaction management

Duration and pricing

Full-time over 5 days (R9995)

Part-time over 4 weeks (2 nights per week, 3 hour sessions)
(R11995)

Part-time over 8 Saturdays, 3 hour sessions (R11995)

Please note : For part-time courses we do not have a fixed schedule and you will be placed on a waiting list until we get a group of 4+ together. Please book with no dates on the bookings form. This will automatically put you on the waiting list. We will confirm with you as soon as we have a part-time group together.

Distance-learning over up to 3 months (R9995)

International exams are not included in the course price.

Prices exclude Vat for Vat-registered companies

Certificate

Upon completion of this course we will issue you with attendance certificate to certify your attendance and / or completion of the prescribed minimum examples.

You may sit for our competency assessment test and on passing you will obtain our competency certificate.

Our competency assessment can be booked and taken by someone who has not attended the course at a cost of R950.

Bookings

You can download the course registration form on our home page or by clicking [here](#)

Brochure

You may download a pdf copy of this page by clicking on the pdf icon at the top of the page.

Questions

Please email us

Schedule

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11 – 15 April Beginner Java Servlets

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Advanced Java Servlets JSP, JSF

Advanced Java Servlets

Prerequisites

You must have completed the [Servlets and JSP's Beginner](#) course before doing this course

Intended Audience

Advanced Java Servlets and JSP's training course builds upon the Beginning Servlets and JSPs course to complete all the required knowledge you will need to build a fully fledged web application.

A good fundamental knowledge of Servlets will prepare you best for all following technologies and frameworks to master.

After this course you should be able to

- Use standard JSP tags to work with JavaBeans.
- Use EL in your JSPs to access the attributes and properties of JavaBeans, maps, arrays, and lists.
- Use EL with the implicit EL objects to work with request

- parameters, request headers, cookies, context initialization parameters, and pageContext objects.
- Disable or enable EL or scripting.
 - Use the JSTL core library in combination with EL to remove Java code from your JSPs.
 - Use the documentation for the JSTL libraries to learn about other JSTL capabilities.
 - Create a Tag Library Descriptor (TLD) for custom tags, and write the tag handler classes that implement these tags.
 - Use custom JSP tags in the JSPs for your applications.
 - Use the MySQL monitor to run commands, DDL statements, and scripts.
 - Code simple SELECT, INSERT, UPDATE, and DELETE statements, and use the MySQL monitor or the MySQL Query Browser to run them.
 - Use the MySQL Administrator Tool to start and stop MySQL.
 - Develop data classes that provide OR mapping and all of the database methods that your servlets need.
 - Develop servlets that use connection pooling and the methods of your data classes.
 - Develop servlets that send email messages to the users of the application.
 - Develop web applications that use secure connections whenever that's needed.
 - Use container-managed security and the JDBCRealm or DataSourceRealm to restrict access to portions of your web applications.
 - Use the get and set methods of the request and response objects.
 - Create, register, and use a listener class.
 - Create, register, and use a filter class.

Course Contents

<p>Day 1 JAVAMAIL</p> <ul style="list-style-type: none"> • How to use JavaMail to send email • An introduction to the JavaMail API • How to create and send an email message • Example classes that send an email message <p>SSL FOR A SECURE CONNECTION</p> <ul style="list-style-type: none"> • How SSL works • How TSL works • When to use a secure connection • How SSL authentication works • How to obtain a digital secure certificate • How to configure a testing environment for SSL • How to create a certificate for testing <ul style="list-style-type: none"> • How to enable SSL in Tomcat • How to test a local SSL connection • How to work with a secure connection <ul style="list-style-type: none"> • How to request a secure connection • A JSP that uses a secure connection • How to return t a regular HTTP connection • How to switch from a local system to an Internet server <p>Day 3</p> <p>AUTHENTICATION</p> <ul style="list-style-type: none"> • How to restrict access to a web resource <ul style="list-style-type: none"> • An introduction to authentication • How container-managed authentication works <ul style="list-style-type: none"> • Three types of authentication • How to restrict access to web resources <ul style="list-style-type: none"> • How to add a security role • How to add a security constraint • How to implement a security realm <ul style="list-style-type: none"> • UserDatabaseRealm • JDBCRealm • DataSourceRealm • How to allow access to authorised users <ul style="list-style-type: none"> • Basic authentication • Digest authentication • Form-based authentication • An introduction to HTTP <p>MORE SECURITY SKILLS</p> <ul style="list-style-type: none"> • Intro to website security <ul style="list-style-type: none"> • Common website attacks • Social engineering attacks <ul style="list-style-type: none"> • Intro to cryptography • Common password attacks <ul style="list-style-type: none"> • Protecting passwords • How to hash passwords • How to salt passwords • A utility class for hashing and salting passwords • Enforcing password strength requirements <p>HTTP REQUESTS AND RESPONSES</p> <ul style="list-style-type: none"> • HTTP request and response <ul style="list-style-type: none"> • Common MIME types • HTTP request headers • HTTP status codes • HTTP response headers • How to get a request header • How to display all request headers <ul style="list-style-type: none"> • How to set status codes • How to set response headers • How to return a spreadsheet <ul style="list-style-type: none"> • How to control caching • How to compress a response with GZIP • How to return a binary file as an attachment <ul style="list-style-type: none"> • How to create virtual HTML pages 	<p>LISTENERS</p> <p>Day 4</p> <ul style="list-style-type: none"> • How to work with listeners • How to use a ServletContextListener <ul style="list-style-type: none"> • Coding the class for the listener <ul style="list-style-type: none"> • Registering the listener • Coding the JSP that uses the attributes set by the listener <ul style="list-style-type: none"> • A summary of the listener interfaces • The methods of the listener interface • The methods of the event objects <p>FILTERS</p> <ul style="list-style-type: none"> • How to work with filters • An introduction to filters <ul style="list-style-type: none"> • How filters work • Two benefits of filters <ul style="list-style-type: none"> • When to use filters • How to add a filter • How to code a filter • How to configure a filter <ul style="list-style-type: none"> • Two filter classes • How to code a filter that performs request-side processing • How to code a filter that performs response-side processing <ul style="list-style-type: none"> • How to wrap a request or response • How to use an initialisation parameter • How to restrict access by IP address <p>Day 5</p> <p>JAVA SERVER FACES (JSF)</p> <ul style="list-style-type: none"> • An introduction to the Music Store web site <ul style="list-style-type: none"> • An introduction to JSF • A summary of JSF versions • Adding a JSF library to the project <ul style="list-style-type: none"> • How to use managed beans <ul style="list-style-type: none"> • Setting the scope of a bean • Using standard JSF tags • Coding the head and body tags • Displaying data from a managed bean <ul style="list-style-type: none"> • Setting the scope of a bean • Coding the head and body tags • Displaying data from a managed bean <ul style="list-style-type: none"> • How to code the inputText tag <ul style="list-style-type: none"> • How to validate data • How to code a form action • The email list Web Application <ul style="list-style-type: none"> • The user interface • The EmailList Bean • The index.xhtml file • The thanks.xhtml file
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2. You have the option to get the competency / academic certificate if you :
hand in a project (pre-approved) covering most of the topics in the book

The project is useful for unemployed students who want to enter the job market. This project and certificate can be used to show employers your abilities.

Schedule

On the calendar on this page below. This course is repeated approximately once every 6 weeks, unless a customised specific booking is [requested via email](#).

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Bookings

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Brochure

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